

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claims 1-62 (Cancelled)

Claim 63 (Currently Amended) A device for stabilization of adjacent vertebrae of a spine, the device comprising:

a bone plate;

a plurality of bores in the bone plate; ~~each configured to receive a bone anchor extending therethrough;~~

a bone anchor configured for extending through one of the bores;

a head of the bone anchor having a spherical outer surface and a shank depending from the head;

a pair of spaced, flat portions of ~~the one of the bores~~ bore that extend substantially parallel to one another and which are spaced by a predetermined fixed distance;

~~an~~ a rotary anchor lock collar member extending about a central axis for being rotatably received in the one bore;

a curved inner surface of the rotary anchor lock collar member adapted to engage the spherical outer surface of the head of the bone anchor to permit the bone anchor to be rotationally driven through the one bore along one of a plurality of different driving axes that are transverse to the central axis and into a vertebral bone;

an upper portion of the rotary anchor lock collar member having notches spaced circumferentially thereabout for receiving a driving tool therein to rotate the rotary anchor lock collar member in the one bore;

a lower portion of the rotary anchor lock collar member having a split-ring construction so that the anchor lock lower portion has facing circumferential ends that are spaced apart from one another by a gap therebetween;

a larger dimension and a smaller dimension of the rotary anchor lock lower portion having respective axes that extend through a center of the split ring rotary anchor lock collar member substantially orthogonal to each other with the larger dimension being greater than the predetermined fixed distance and the smaller dimension being less than the predetermined fixed distance; and

cooperating inner and outer surfaces of the one bore flat portions and the anchor lock lower portion respectively, which cause the facing ends to shift toward each other with approximately ninety degrees of rotation of the anchor lock collar member, after the bone anchor has been driven through the one bore and into the vertebral bone, so that rotation of the rotary anchor lock collar member is independent from the rotational driving of the bone anchor with the rotating anchor lock collar member being rotated from an open, bone anchor receiving configuration with the larger dimension axis oriented to be substantially parallel to the bore flat portions to a clamped, bone anchor locking configuration with the larger dimension axis oriented to be substantially perpendicular to the bore flat portions to cause the facing ends to shift toward each other to reduce the size of the gap therebetween so that a the bone anchor extending through the one bore and the rotary anchor lock collar member therein is locked in the one bore against back out therefrom and against polyaxial movement relative to the bone plate and the rotary anchor lock collar member.

Claim 64 (Currently Amended) The device of claim 63 wherein the rotary anchor lock lower portion includes two substantially flat surfaces that are diametrically opposed to one another along the larger dimension axis and each about a bore flat portion when the rotary anchor lock collar member is in the clamped, bone anchor locking configuration to resist anchor lock rotation away from the bone anchor locking configuration.

Claim 65 (Currently Amended) The device of claim 64 wherein each substantially flat surface is adjacent an anchor lock camming surface so that when the rotary anchor lock collar member is rotated between the bone anchor receiving and locking configurations, the transition between the anchor lock camming surfaces camming against the bore flat portions and the anchor lock substantially flat surfaces abutting the bore flat portions provides tactile feedback to a surgeon that the anchor lock has been shifted to the locking configuration.

Claim 66 (Cancelled)

Claim 67 (Currently Amended) The device of claim 63 wherein the facing circumferential ends are oriented on the rotary anchor lock collar member in a position that generally avoids contact with the bore flat portions so as to minimize hang-ups when the anchor lock is rotated between bone anchor receiving and locking configurations.

Claim 68 (Currently Amended) The device of claim 63 wherein the facing circumferential ends of the rotary anchor lock collar member form a gap spacing that is positioned in a predetermined location when the anchor lock collar member is shifted to the bone anchor locking configuration to allow a surgeon to visually recognize when the anchor lock has been rotated to the locking configuration.

Claim 69 (Cancelled)

Claim 70 (Previously Presented) The device of claim 63 wherein the bone plate is one of a titanium, stainless steel, and PEEK material.

Claim 71 (Currently Amended) A device for stabilization of adjacent vertebrae of a spine, the device comprising:

a bone plate;

a plurality of bores in the bone plate configured to each receive a bone screw extending therethrough;

at least one of the bores being a dynamized bore having an elongate configuration to allow a bone screw extending therethrough and into a ~~vertebrae~~ vertebral bone to shift relative to the bone plate;

a pair of opposed flat portions of the dynamized bore which extend along the length thereof;

a screw lock member configured to be rotatably received in the dynamized bore for being rotated between a screw receiving unlocked configuration and a screw locking configuration;

a pair of diametrically opposed outer flats of the screw lock member which have a planar configuration, the flats face facing radially outward ~~therefrom~~ from the screw lock member and extending parallel to one another; and

a substantially smooth inner surface of the screw lock member having an inner diameter sized in clearance with the bone screw when in the screw receiving unlocked configuration, wherein rotation of the screw lock member to the screw locking configuration brings the flats into confronting relation with the opposed bore flat portions which substantially uniformly reduces the inner diameter in size so that the smooth inner surface provides a uniform clamping force about the bone screw and the flats are configured to slide along the bore flat portions to permit relative translation of the bone screw and the screw lock member in the dynamized bore while the confronting engagement of the flats of the screw lock member against the flat portions of the dynamized bore keeping avoids turning of the screw lock member of the dynamized bore as the screw lock member slides along the bore flat portions to keep the screw lock member in the screw locking configuration for resisting back out of the bone screw from ~~backing out therefrom~~ the dynamized bore.

Claim 72 (Previously Presented) The device of claim 71 wherein the rotatable screw lock member has a larger dimension and a smaller dimension, the larger dimension being brought to bear against the bore flat portions upon rotation of the screw lock member from the screw

receiving configuration to the screw locking configuration which shortens the larger dimension and causes the screw lock member to constrict about the bone screw.

Claim 73 (Previously Presented) The device of claim 72 wherein the dynamized bore has both minor and major axes and the larger dimension of the screw lock member is aligned with the major axis of the bore when the screw lock member is in the screw receiving configuration and the minor axis when the screw lock member is in the screw locking configuration.

Claim 74 (Previously Presented) The device of claim 72 wherein the substantially smooth inner surface of the screw lock member conforms to a corresponding surface on the bone screw, the screw lock member inner surface and the corresponding surface on the bone screw having a greater coefficient of friction than a coefficient of friction between the flats of the screw lock member and the bore flat portions to permit dynamization of the rotatable screw lock member within the bore without loosening engagement of the screw lock member about the bone screw.

Claim 75 (Currently Amended) A bone plate system for securing a plurality of bones in a desired alignment, the bone plate system comprising:

- a bone plate having a top surface and a bottom surface;

- a plurality of bores extending through the plate which receive bone anchors for securing the plate to the plurality of bones;

- a channel of one of the bores, the channel being located between the top and bottom surfaces of the plate and having upper and lower surfaces extending radially outward from the bore;

- a split ring locking collar configured for being rotatably received in the one bore;

- a radially outer step portion of the locking collar having a thicker portion and a thinner portion extending about the circumference of the step portion, the thicker portion being continuous about the circumference and the thinner portion being interrupted by the split in the split ring locking collar; and

an upwardly facing cam surface extending between the thicker and thinner portions of the locking collar step portion configured for camming against the channel upper surface so that rotation of the locking collar toward a locked configuration thereof brings the locking collar cam surface into engagement with the channel upper surface which causes a tight wedge fit of the step portion thicker portion in the channel to avoid reverse rotation back toward an unlocked configuration of the collar in the bore.

Claim 76 (Previously Presented) The bone plate system of claim 75 wherein the upwardly facing cam surface of the locking collar is a ramp disposed between the thicker and thinner portions of the locking collar.

Claim 77 (Previously Presented) The bone plate system of claim 75 wherein the thicker portion of the locking collar has a projection that mates with the channel upper surface to restrict return rotation of the locking collar.

Claim 78 (Currently Amended) The device of claim 71 wherein the screw lock member includes outer curved surfaces and junctures between the curved surfaces and the flats, the junctures being diametrically opposed across the screw lock member ~~and separated by a distance that is greater than the distance between the diametrically opposed flats of the screw lock member such that the junctures resist rotation of the screw lock member toward the unlocked configuration~~ with the largest diameter of the screw lock member being between the diametrically opposed junctures.